

## NIRMA UNIVERSITY

|                              |                                                                                                                                                                                                                                                                                                                       |
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| <b>Institute:</b>            | <b>School of Engineering, Institute of Technology</b>                                                                                                                                                                                                                                                                 |
| <b>Name of Programme:</b>    | <b>M. Tech. in Civil Engineering<br/>(Construction Technology and Management)</b>                                                                                                                                                                                                                                     |
| <b>Course Code:</b>          | 6CL152                                                                                                                                                                                                                                                                                                                |
| <b>Course Title:</b>         | Research Methodology and IPR                                                                                                                                                                                                                                                                                          |
| <b>Course Type:</b>          | ( <input checked="" type="checkbox"/> Core/ <input type="checkbox"/> Value Added Course/ <input type="checkbox"/> Departmental Elective/<br><input type="checkbox"/> Institute Elective/ <input type="checkbox"/> University Elective/( <input type="checkbox"/> Open<br>Elective <input type="checkbox"/> Any other) |
| <b>Year of introduction:</b> | <b>2022-23</b>                                                                                                                                                                                                                                                                                                        |

| <b>L</b> | <b>T</b> | <b>Practical component</b> |           |          | <b>C</b> |
|----------|----------|----------------------------|-----------|----------|----------|
|          |          | <b>LPW</b>                 | <b>PW</b> | <b>W</b> | <b>S</b> |
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### Course Learning Outcomes (CLOs):

At the end of the course, the students will be able to –

1. appraise data collection methods and tools; and research methodology (BL5)
2. organize research related information and plan for research problem formulation (BL3)
3. develop research writing skills; and practice research ethics (BL3)
4. contrast research outcomes suitable for publications or IPR (BL4)
5. infer the basic IPR needs, protections, law, process and trends in IPR (BL2)



### Syllabus:

**Teaching hours: 30**

| <b>Unit</b> | <b>Syllabus</b>                                                                                                                                                                                                                                                                          | <b>Teaching hours</b> |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Unit-I      | <b>Introduction</b><br>Introduction to research problem, sources of finding a research problem, characteristics of a research problem, pitfalls in selecting a research problem, scope and objectives of research problem, approaches of investigation of solutions for research problem | 04                    |
| Unit-II     | <b>Literature Review</b><br>Effective literature review approaches, literature analysis, avoiding plagiarism, ethics in research, data collection, analysis, interpretation, tools for data collection.                                                                                  | 04                    |
| Unit-III    | <b>Technical Writing and Presentation</b><br>Effective technical writing, thesis writing, research proposal writing, research paper writing, presentation skills, tools for technical writing and presentation.                                                                          | 04                    |
| Unit-IV     | <b>Intellectual Property Rights</b><br>Introduction and significance of intellectual property rights, types of Intellectual Property Rights, copyright and its significance, introduction to patents and its filing, introduction to patent drafting,                                    | 04                    |

best practices in national and international patent filing, copyrightable work examples.

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Unit-V  | <b>Patent Rights</b>                                                                                                                                                                                                                                                                                                                                                                                                                                         | 07 |
|         | Patents and its basics, patentable items, designs, process of filing patent at national and international level, process of patenting and development, technological research and patents, innovation, patent and copyright international intellectual property, procedure for grants of patents, need of specifications, types of patent applications, provisional and complete specification, patent specifications and its contents, trade and copyright. |    |
| Unit-VI | <b>New Developments in Intellectual Property Rights (IPR)</b>                                                                                                                                                                                                                                                                                                                                                                                                | 07 |
|         | Administration of patent system in India, India's stand in the world of IPs, new developments in IPR at national and international level, prosecution (filing) PCT / international filing, national phase filing, scope of patent rights, licensing and transfer of technology, patent information and databases, geographical indications, basic laws related to patent filing, case studies- IPR of Hardware, computer software.                           |    |

Self Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings/ References:

- Melville, S. & Goddard, W. *Research Methodology: An Introduction for Science & Engineering Students*, Juta & Co. Ltd.
- Kumar, R. *Research Methodology: A Step by Step Guide for beginners*, Pearson.
- Halbert, D. J. *Resisting Intellectual Property*, Taylor & Francis.
- Mayall, W. H. *Industrial Design*, McGraw Hill.
- Asimow, M. *Introduction to Design*, Prentice Hall.
- Merges, R. P., Menell, P. S. & Lemley, M. A. *Intellectual Property in New Technological Age*, Clause 8 Publishing.
- Ramappa, T. *Intellectual Property Rights under WTO: Tasks before India*, S Chand.

Suggested List of Experiments:

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Suggested Case List:

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